

## ABSTRACT

The invention achieves a dc motor drive system by the PWM control system that permits a high-accuracy rotation drive control while detecting the currents flowing into the coils without using the shunt resistors. The system drives output MOS transistors by the PWM control to make the currents flow into the coils, and drives to rotate the dc motor. The system includes current sensing MOS transistors having a predetermined size ratio  $1/m$  ( $M>1$ ) to the output MOS transistors that make the currents flow into the coils. The source terminals of the current sensing MOS transistors are commonly connected to the source terminals of the output MOS transistors. The current sensing MOS transistors are capable of making flow reduced currents proportional to the currents of the output MOS transistors. The gate terminals of the current sensing MOS transistors receive the signals identical to the signals being applied to the gate terminals of the output MOS transistors. And, the system has a means that monitors drain voltages of the output MOS transistors, and applies the voltages identical to the drain voltages to the drain terminals of the current sensing MOS transistors.